

# **TECHNICAL STANDARDS TO MANAGE AIR POLLUTION**

**Version 1.0**

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*Protecting our environment.*





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## FOREWORD

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This document, "Technical Standards to Manage Air Pollution, December 4, 2009, version 1.0" (the Technical Standards publication) sets out the requirements that facilities must follow if they are registered for a technical standard. As per section 38 of Ontario Regulation 419/05: Air Pollution - Local Air Quality, a technical standard can be either an industry standard or an equipment standard. All technical standards will be made available through a website maintained by the Ministry of the Environment on the Internet and through the Ministry's Public Information Centre.

The Technical Standards publication will include both industry standards and equipment standards. It will specify the classes of facilities the technical standard applies to, with reference to the North American Industry Classification System (NAICS) codes; the contaminants the technical standard applies to; the steps that shall be taken to comply with the technical standard; and, the time periods within which the steps shall be taken. It will describe requirements relating to technology to be used at the facility, the operation of the facility, the monitoring and reporting of information relating to the facility, and any other related matter. In the event of a conflict between this document and the references to sections in O. Regulation 419/05, the language in O. Regulation 419/05 shall be used.

The contents of this document may also be updated from time to time. Any changes will be based upon public consultation consistent with the Ontario Environmental Bill of Rights legislation. All web site addresses referred to in this document were current at the time of release.

For any addenda or revisions to the Technical Standards publication, please visit the MOE website at <http://www.ene.gov.on.ca> or contact:

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## Table of Contents

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<b>TECHNICAL STANDARDS TO MANAGE AIR POLLUTION.....</b>	<b>i</b>
<b>FOREWORD.....</b>	<b>i</b>
<b>1.0 INTRODUCTION.....</b>	<b>1</b>
<b>1.1 Industry Standards.....</b>	<b>3</b>
<b>1.2 Equipment Standards .....</b>	<b>4</b>
<b>1.3 Combination of industry standards and equipment standards .....</b>	<b>4</b>
<b>1.4 Updating of Technical Standards .....</b>	<b>5</b>
<b>2.0 FOUNDRIES – INDUSTRY STANDARD.....</b>	<b>6</b>
<b>3.0 FOREST PRODUCTS – INDUSTRY STANDARD .....</b>	<b>33</b>
Appendix A: Record of Publications.....	l

## 1.0 INTRODUCTION

Ontario Regulation 419/05: Air Pollution – Local Air Quality (the Regulation or O. Reg. 419/05) made under the *Environmental Protection Act* (EPA) is the regulation that is intended to protect communities against adverse effects from local sources of air emissions. The Regulation places limits on the concentration of contaminants in the natural environment that are caused by emissions from a facility. Under certain conditions, the Regulation also allows for a person to register for a technical standard in respect of a facility for certain contaminants, as identified in this Technical Standards publication document. Registering for and complying with a technical standard is an alternative to complying with the air standards that are based on contaminant concentrations.

This Technical Standards publication is published under the authority of section 38 of the Regulation.

### **Technical Standards publication - O. Reg. 419/05, s. 38.**

*38 (1) The Minister shall ensure that, with respect to the Technical Standards publication, all of the following criteria are met:*

- 1. Every technical standard set out in the Technical Standards publication is specifically identified in the publication as an industry standard or an equipment standard.*
- 2. For each industry standard that is set out in the Technical Standards publication,*
  - i. the Technical Standards publication specifies which classes of facilities the industry standard applies to, and those classes are identified with reference to NAICS codes,*
  - ii. the Technical Standards publication specifies which contaminants the industry standard applies to,*
  - iii. the Technical Standards publication sets out the steps that shall be taken to comply with the industry standard, and*
  - iv. the Technical Standards publication sets out the time periods, if any, within which the steps specified under subparagraph iii shall be taken.*
- 3. The Technical Standards publication indicates that, with respect to each class specified under subparagraph 2 i to which an industry standard applies, and with respect to at least one contaminant to which that standard applies, the Minister is of the opinion that,*
  - i. with respect to at least two facilities in the class that are located in Ontario,*
    - A. it is not technically feasible to comply with section 19 or 20, whichever is applicable, or*
    - B. it is not economically feasible to comply with section 19 or 20, whichever is applicable,*
  - ii. compliance, in accordance with subsection 42 (5), with the industry standard that applies to the class and the contaminant,*
    - A. is technically and economically feasible with respect to at least one facility in the class that is located in Ontario, and*
    - B. will permit efforts that would otherwise be made to comply with section 19 or 20 to be put to better use to protect the natural environment, having regard to subparagraph I,*
  - iii. including the industry standard that applies to the class and the contaminant in the Technical Standards publication is more efficient than having the Director consider separate requests under section 32 for approval of alterations to the standard for the contaminant that would otherwise apply to facilities in the class.*

4. *For each equipment standard that is set out in the Technical Standards publication,*
    - i. *the Technical Standards publication specifies which classes of facilities the equipment standard applies to, and those classes are identified with reference to NAICS codes,*
    - ii. *the Technical Standards publication specifies which contaminants the equipment standard applies to,*
    - iii. *the Technical Standards publication specifies which sources of contaminant the equipment standard applies to,*
    - iv. *the Technical Standards publication sets out the steps that shall be taken to comply with the equipment standard, and*
    - v. *the Technical Standards publication sets out the time periods, if any, within which the steps specified under subparagraph iv shall be taken.*
  5. *The Technical Standards publication indicates that, with respect to each class specified under subparagraph 4 i to which a equipment standard applies and with respect to at least one contaminant and source of contaminant to which that standard applies, the Minister is of the opinion that,*
    - i. *at least two facilities in the class that are located in Ontario have the source of contaminant, and*
    - ii. *compliance, in accordance with subsection 43 (4), with the equipment standard that applies to the class, the contaminant and the source of contaminant is technically and economically feasible with respect to at least one facility in the class that is located in Ontario.*
- (2) *Before a technical standard is set out in the Technical Standards publication, the Minister shall consider whether provisions dealing with the following matters should be included in the technical standard:*
    1. *Notification of and consultation with affected persons before making an application for registration in respect of the technical standard.*
    2. *The making and retention of records.*
    3. *Circumstances in which notice is required to be given to the Ministry.*
    4. *Progress reports relating to implementation of the technical standard.*
  - (3) *Before an industry standard that applies to a class of facilities is set out in the Technical Standards publication, the Minister shall consider whether compliance, in accordance with subsection 42 (5), with the industry standard may reduce the regulatory burden applicable to facilities in that class for which compliance with section 19 or 20 would otherwise be required.*
  - (4) *Before an equipment standard that applies to a class of facilities and a source of contaminant is set out in the Technical Standards publication, the Minister shall consider whether compliance, in accordance with subsection 43 (4), with the equipment standard may reduce the regulatory burden applicable to facilities in that class for which consideration of the source of contaminant would otherwise be necessary when using an approved dispersion model for the purposes of this Part.*

A facility may be registered for an industry standard, an equipment standard or a combination of industry standard and equipment standard. A brief description of these technical standards is provided below. For more information, please refer to the Regulation.

## 1.1 Industry Standards

In general, a person is exempt from Part II of the Regulation for a contaminant if the person is registered with respect to a sufficient number of industry standards to address all sources of that contaminant at their facility. Subsections 42(1) and (2) provide that:

- 42. (1) Subject to subsection (2), this Part, except for this section and sections 24, 27.1 and 38 to 41, does not apply to a person in respect of a facility and contaminant if one or more industry standards set out in the Technical Standards publication apply to the facility and the contaminant, and*
- (a) the facility is part of only one class identified by a NAICS code, and the person is registered on the Ministry's Technical Standards Registry – Air Pollution in respect of all of the industry standards that apply to the facility and the contaminant; or*
  - (b) the facility is part of two or more classes that are identified by NAICS codes, industry standards apply to all of those classes and to the contaminant, and the person is registered on the Ministry's Technical Standards Registry – Air Pollution in respect of all of those industry standards.*
- (2) This Part applies for the purpose of determining whether the Director may give a person a notice under section 24 or 27.1 and for the purpose of preparing a report required by a notice under section 24 or 27.1*

In other words, if all of the sources of a contaminant at that facility are addressed in one or more industry standards, and that facility is registered for all of the industry standards, then that facility is exempt from the air standards in Schedules 2 or 3 of O. Reg. 419/05 for the contaminant(s) for which the person is registered for in respect of the facility. As such, it is not necessary for such a facility to assess any other sources of the contaminant(s) for which the facility is registered.

If a person is registered for an industry standard(s) in respect of a facility and a contaminant, but all sources of the contaminant at the facility are not addressed by the industry standard(s) (i.e. there are sources of contaminant at the facility that are part of another NAICS code), the person may exclude the sources of contaminant that are associated with the NAICS code addressed in the industry standard when modelling under the Regulation. Section 42(4) provides:

- 42 (4) A person who uses an approved dispersion model for the purposes of this Part in respect of a facility and a contaminant is not required to consider a source of contaminant that discharges the contaminant if,*
- (a) subsection (1) does not apply to the person in respect of the facility and the contaminant;*
  - (b) the source of contaminant is in a part of the facility that is a part of a class of facilities to which an industry standard applies in respect of the facility and the contaminant; and*
  - (c) the person is registered on the Ministry's Technical Standards Registry – Air Pollution in respect of the industry standard, facility and contaminant.*

## 1.2 Equipment Standards

In general, a person is exempt from Part II of the Regulation for a contaminant if the person is registered with respect to a sufficient number of equipment standards to address all sources of that contaminant at their facility. Section 43(1) and (2) provide that:

- 43 (1) Subject to subsection (2), this Part, except for this section and sections 24, 27.1 and 38 to 41, does not apply to a person in respect of a facility and contaminant if,*
- (a) equipment standards set out in the Technical Standards publication apply to every source of the contaminant in the facility; and*
  - (b) the person is registered on the Ministry's Technical Standards Registry – Air Pollution in respect of the facility, the contaminant and every equipment standard that applies to a source of contaminant in the facility.*
- (2) This Part applies for the purpose of determining whether the Director may give a person a notice under section 24 or 27.1 and for the purpose of preparing a report required by a notice under section 24 or 27.1.*

However, if an equipment standard or combination of equipment standards does not address all sources of contaminants from that facility, then a person who uses an approved dispersion model for the purposes of Part II of the Regulation in respect of a facility and a contaminant is not required to consider the source of contaminant referenced in the equipment standard(s) for which the person is registered. Section 43(3) of the Regulation provides:

- 43 (3) A person who uses an approved dispersion model for the purposes of this Part in respect of a facility and a contaminant is not required to consider a source of contaminant that discharges the contaminant if,*
- (a) subsection (1) does not apply to the person in respect of the facility and the contaminant;*
  - (b) an equipment standard set out in the Technical Standards publication applies to the facility, the contaminant and the source of contaminant; and*
  - (c) the person is registered on the Ministry's Technical Standards Registry – Air Pollution in respect of the equipment standard, facility, contaminant and source of contaminant.*

## 1.3 Combination of industry standards and equipment standards

In general, a person is exempt from Part II of the Regulation for a contaminant if the person is registered with respect to a combination of one or more industry standards and one or more equipment standards such that all sources of that contaminant at their facility are addressed. Section 44(1) and (2) provide that:



44. (1) *Subject to subsection (2), this Part, except for this section and sections 24, 27.1 and 38 to 41, does not apply to a person in respect of a facility and contaminant if,*
- (a) the person is registered on the Ministry's Technical Standards Registry – Air Pollution in respect of one or more industry standards, the facility and the contaminant;*
  - (b) there is one or more sources of contaminant in a part of the facility that is not part of a class of facilities to which any of the industry standards referred to in clause (a) apply; and*
  - (c) with respect to each source of contaminant to which clause (b) applies, the person is registered on the Ministry's Technical Standards Registry – Air Pollution in respect of an equipment standard, the facility, the contaminant and the source of contaminant.*
- (2) *This Part applies for the purpose of determining whether the Director may give a person a notice under section 24 or 27.1 and for the purpose of preparing a report required by a notice under section 24 or 27.1.*

In other words, if all of the sources of a contaminant at that facility are addressed in one or more industry standards and one or more equipment standards, and that facility is registered for all of those industry and equipment standards, then that facility is exempt from the air standards in Schedules 2 or 3 of O. Reg. 419/05 for the contaminant(s) for which the person is registered for in respect of the facility. As such, it is not necessary for such a facility to assess any other sources of the contaminant(s) for which the facility is registered.

## 1.4 Updating of Technical Standards

Part IV (Application for Review) of the Environmental Bill of Rights (EBR) gives the people of Ontario a formal process for proposing that an existing policy, Act, regulation or instrument of Ontario should be reviewed, changed or improved in order to protect the environment. A person may also ask the government to consider establishing new ones. Under this authority, any two people may request the Minister to review a technical standard. The following are factors that could be considered in making this request:

1. The length of time the technical standard has been in place.
2. New technically and/or economically feasible options that have become commercially available.
3. Any new scientific information relating to the nature of any contaminant to which the technical standard applies.

For more information on how to request a review, please go to <http://www.eco.on.ca>.

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## 2.0 FOUNDRIES – INDUSTRY STANDARD

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### Preamble

- This technical standard is an industry standard as defined in section 1 of O. Reg. 419/05.
- With respect to facilities, this standard applies to every facility that is part of a class identified by NAICS code 3315 (Foundries). Facilities in this class include 33151 (Ferrous Metal Foundries), 331511 (Iron Foundries), 331514 (Steel Foundries), 33152 (Non-ferrous Metal Foundries), 331523 (Non-ferrous Die-casting Foundries) and 331529 (Non-ferrous Foundries (except Die-casting)) but do not include secondary lead smelters.
- With respect to contaminants, this standard applies to:
  - suspended particulate matter, including any of the contaminants listed in Appendix 2-1;
  - volatile organic compounds, including any of the contaminants listed in Appendix 2-2; and
  - sulphur dioxide.
- All of the sources of contaminant that discharge the contaminants mentioned in the above bullet that are associated with the above NAICS code have been considered in this industry standard. As such, a person that meets the criteria set out in subsection 42(1) or subsection 44(1) of O. Reg. 419/05 is, in general, exempt from Part II of the Regulation in respect of the facility and contaminant(s) for which it is registered. In other words, a facility that is registered under this industry standard does not have to include any source of contaminant associated with the NAICS code that applies to them in any future Emission Summary and Dispersion Modelling reports for the contaminant(s) for which they are registered. (For more information, please see the Introduction to the Technical Standards Publication.)
- In accordance with subsection 38(3) of O. Reg. 419/05, compliance with this industry standard in accordance with subsection 42 (5) or subsection 44(3) may reduce the regulatory burden applicable to facilities in this class.
- This standard contains requirements that relate to a source of contaminant that is part of one or more of the following processes:
  - a metal melting process
  - a furnace tapping process
  - a molten metal pouring process
  - a casting cooling process
  - a process that involves trimming, grinding, cutting, finishing, or media blasting of castings
  - a sand reclamation process
  - a materials handling process -- scrap, charge, sand, and slag handling processes are considered to be materials handling processes
  - a mold production process (hot box and warm box)
  - a core production process (shell core and cold box)
  - a casting process, including a cooling and shakeout process

- For this industry standard, with respect to lead and suspended particulate matter, the publication of this industry standard indicates that the following criteria of paragraph 3<sup>1</sup> of subsection 38(1) of O. Reg. 419/05 are met:
  - (a) with respect to at least two facilities located in Ontario to which this standard applies, it is not economically feasible to comply with section 19 or 20 of O. Reg. 419/05, whichever is applicable,
  - (b) compliance, in accordance with subsection 42 (5) of O. Reg. 419/05, with this standard,
    - (i) is technically and economically feasible with respect to at least one facility located in Ontario to which this industry standard applies, and
    - (ii) will permit efforts that would otherwise be made to comply with section 19 or 20 of O. Reg. 419/05 to be put to better use to protect the natural environment, having regard to subclause (i), and
    - (iii) including this industry standard in the “Technical Standards to Manage Air Pollution” is more efficient than having the Director consider separate requests under section 32 of O. Reg. 419/05 for approval of alterations to the standard for lead and suspended particulate matter that would otherwise apply to facilities to which this industry standard applies.

## Definitions

### 1. For the purposes of this technical standard for the foundry sector,

“adsorption system” means a technology where a pollutant is adsorbed on the surface (mostly the internal surface) of a granule, bead, or crystal of adsorbent material. Typically fixed beds of adsorbents such as activated carbon are used to remove VOCs;

“as-built condition” means the specifications of the equipment or system that was installed, not the design specifications;

“baghouse” means a device that uses fabric bags or cartridge filters to remove particulate from a gaseous stream prior to its discharge to the air;

“CAS No.” has the same meaning as in section 1 of O. Reg. 419/05;

“catalytic oxidizer” means a technology that passes a gas over a support material coated with a catalyst that promotes oxidation of organic material in the gas;

“coke-fired cupola furnace” means a coke-fired continuous type furnace, generally used as a melt furnace;

“cold box” means a technology that uses cold setting resins that include the addition of a gaseous catalyst such as sulphur dioxide;

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<sup>1</sup> With respect to lead and suspended particulate matter, the Minister of the Environment is of the opinion that the criteria set out in paragraph 3 of subsection 38(1) of O. Reg. 419/05 are met.

“cold setting resins” means resins that cure at ambient temperatures and include resins that may require the addition of a catalyst to cure at ambient temperatures;

“cupola afterburner” means a burner that treats combustion gases from a cupola furnace;

“existing facility” means a facility

- (i) the construction of which was completed or began on or before February 1, 2010, or
- (ii) for which an application was made on or before February 1, 2010 for a certificate of approval in respect of the facility;

“foundry” means a facility at which molten metal is poured into a mold or die to form a casting and is part of a class identified by NAICS code 3315, and includes a ferrous metal foundry, iron foundry, steel foundry, non-ferrous metal foundry, non-ferrous die-casting foundry, and non-ferrous foundries (except die-casting) and does not include secondary lead smelters;

“general exhaust ventilation” means a system that exhausts directly from a building to the atmosphere and excludes washroom fans;

“hot setting resins” means resins that are cured by heating;

“local exhaust ventilation” means a system used to capture a contaminant at or near the point where the contaminant is generated; this could include equipment such as a hood, blast gate, ductwork, damper and fan that connects to a pollution control device;

“major modification” means any process added to the foundry after February 1, 2010 which includes a source of contaminant that is part of a process listed in subsection 17(1) of this industry standard and any replacement of such a source of contaminant after February 1, 2010. It does not include repairs or maintenance. For example, a new or replaced furnace at a facility would be a major modification;

“make-up air” means air that replaces exhausted air from a given space;

“MOE” means the Ontario Ministry of the Environment;

“NAICS” has the same meaning as in section 1 of O. Reg. 419/05;

“naphthalene depleted solvent resin” means a resin where the maximum naphthalene (CAS#91-20-3) concentration within the solvent fraction is less than 3%;

“new facility” means a facility, the construction of which began after February 1, 2010 and no application was made on or before that day for a certificate of approval in respect of the facility;

“non-aromatic solvent” means a solvent that does not contain chemicals with a ring of carbon atoms (such as benzene and naphthalene). In this industry standard, a non-aromatic solvent would only be applicable to foundries using amine-hardened urethane-bonded (i.e., cold-box) core preparation;

“non-ferrous metal foundry that uses lead” means a foundry that uses non-ferrous metal to form castings and is part of a class identified by NAICS code 33152, and uses raw materials containing greater than 0.2% by weight of lead or lead compounds;

“priority metal” means any of the following metals or any combination of the following metals:

- a) lead (and lead compounds),
- b) hexavalent chromium, and chromium and chromium compounds divalent and trivalent,
- c) cadmium (and cadmium compounds),
- d) manganese (and manganese compounds),
- e) nickel (and nickel compounds),
- f) arsenic (and arsenic compounds),
- g) mercury and mercury (as Hg) – alkyl compounds, and
- h) vanadium (and vanadium compounds);

“raw material” means an ingredient that is used in the production of castings and includes incoming scrap;

“SPM” means suspended particulate matter that has a diameter of less than 44 microns and includes the contaminants that are listed in Appendix 2-1;

“static pressure” means pressure exerted by a gas; for example when a gas is flowing static pressure is measured perpendicular to the direction of flow; when a gas is at rest static pressure is the pressure exerted in all directions by the gas;.

“sulphur dioxide” means the contaminant that has a CAS No. of 7446-09-5;

“technical standard” has the same meaning as in section 1 of O. Reg. 419/05;

“thermal oxidizer” means a technology where combustible waste gases pass over or around a burner flame into a residence chamber where oxidation of the waste gases is completed;

“VOCs” means volatile organic compounds and includes the contaminants that are listed in Appendix 2-2;

“vacuum molding” means a process that creates a mold by ramming dry sand (without any binder addition) that is held between plastic sheets by partial vacuum with vibrations;

“ventilation coordinator” means a person with a level of authority adequate to be responsible for all design, installation, modification, operation and maintenance requirements related to optimizing the capture of contaminants through the foundry’s ventilation systems; and

“wet scrubber” means technology where particulate matter and acid gases are removed from waste gases, primarily through impaction, diffusion, interception and absorption onto droplets of liquid.

## Application

2. (1) A person who registers on the Ministry's Technical Standards Registry - Air Pollution by the date listed in Column 2 in respect of: (i) this industry standard; (ii) a facility of a type listed in Column 1; and (iii) SPM, VOCs or sulphur dioxide, shall comply with the sections listed in Column 3 by the dates specified in Column 4.

Item	Column 1	Column 2	Column 3	Column 4
	<b>Facility Type</b>	<b>Registration Date</b>	<b>Section of the Technical Standard</b>	<b>Date for Compliance with section</b>
1	Existing Facility	Before February 1, 2011	1, 2, 19	February 1, 2011
			3,4,11,12,14,16,17,18	August 1, 2011
			5, 6	February 1, 2012
			7, 10, 13, 15	February 1, 2013
2	Existing Facility	On or after February 1, 2011	1, 2, 19	The date the facility applies for registration.
			3,4,11,12,14,16,17,18	The later of (i) the date the facility applies for registration and (ii) August 1, 2011
			5, 6	The later of (i) the date the facility applies for registration and (ii) February 1, 2012
			7, 10, 13, 15	The later of (i) the date the facility applies for registration and (ii) February 1, 2013
3	New Facility	On or after February 1, 2010	All	The later of (i) the date the facility applies for registration and (ii) February 1, 2011.

4	Registered Existing or New Facility that has a major modification	On or after February 1, 2010.	All	The later of (i) the date that any source of contaminant related to the major modification begins operation and (ii) February 1, 2011.
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### Reduction of Priority Metals

3. (1) This section applies to a foundry that,

- (a) uses raw materials that contain at least one priority metal; and
- (b) has a source of contaminant that discharges SPM.

(2) A person who discharges or causes or permits the discharge of a contaminant mentioned in subsection (1) shall develop and implement written procedures to reduce, where feasible, the weight percent of priority metals in raw materials and products.

### Operational Practices – Minimization of SPM

4. (1) This section applies to a foundry that has a source of contaminant that

- i. discharges SPM; and
- ii. is part of one or more of the following processes:
  - a) an incoming scrap handling process
  - b) a charge handling process
  - c) a sand handling process
  - d) a slag handling process
  - e) a materials handling process that has a source of contaminant that discharges SPM

(2) A person who discharges or causes or permits the discharge of a contaminant mentioned in subsection (1) shall develop and implement, in accordance with good engineering practices, written procedures to ensure that the discharge of SPM is minimized for each source of contaminant described in subsection (1).

(3) The procedures mentioned in subsection (2) shall include the following:

- i. methods to minimize the discharge of fugitive dust, including minimizing the discharge of fugitive dust from roadways and outdoor storage piles; and
- ii. general good housekeeping practices.

**Ventilation Requirements – Fume Reduction and Optimizing Capture of SPM**

5. (1) This section applies to a foundry that has a source of contaminant that

- i discharges SPM, including lead; and
- ii are part of one or more of the following processes:
  - a) a metal melting process
  - b) a furnace tapping process
  - c) a molten metal pouring process
  - d) a casting cooling process
  - e) a process that involves trimming, grinding, cutting, finishing, or media blasting of castings
  - f) a sand reclamation process

(2) A person who discharges or causes or permits the discharge of a contaminant mentioned in subsection (1) shall develop and implement written procedures to ensure that fugitive emissions from each source of contaminant mentioned in subparagraphs (a) to (d) of paragraph (1)(ii) are reduced.

(3) A person who discharges or causes or permits the discharge of a contaminant mentioned in subsection (1) shall

- (a) appoint a ventilation coordinator to develop and implement a ventilation program;
- (b) prepare a written record of the name of the ventilation coordinator and the date of appointment; and
- (c) update the record to reflect any new appointments.

(4) The ventilation coordinator shall develop and implement the ventilation program mentioned in subsection (3) and the ventilation program shall include a written description of the foundry's ventilation systems.

(5) The description mentioned in subsection (4) shall include:

- i. a description of ventilation systems, including local exhaust ventilation, general exhaust ventilation and make-up air systems;
- ii. the specifications of ventilation equipment, for example, the volumetric flow rate of a make-up air unit;
- iii. process flow diagrams of the ventilation systems mentioned in paragraph i drawn to scale that include key information such as volumetric flow rates;
- iv. drawings of the ventilation systems mentioned in paragraph i that reflect as-built condition; and
- v. a table of volumetric flow rates that compares make-up air flow rates to the combined general exhaust ventilation flow rates and local exhaust ventilation flow rates for each area of the building that encloses a source of contaminant described in subparagraphs (a) to (d) of paragraph (1)(ii).

(6) The ventilation coordinator shall update the description mentioned in subsection (4) to reflect any changes to the information required by subsection (5) so that the information required by subsection (5) is accurate as of December 31 in a year.



(7) Not later than March 31 in the year following the year referred to in subsection (6), the ventilation coordinator shall

- (a) complete the update required by subsection (6);
- (b) prepare a written summary of the update; and
- (c) provide a copy of the summary of the update to the highest ranking employee at the foundry.

### **Ventilation Assessment – Optimizing Capture of Lead**

6. (1) This section applies to a non-ferrous metal foundry that uses lead and has a source of contaminant that

- i. discharges lead; and
- ii. is part of one or more of the following processes:
  - a) a metal melting process
  - b) a furnace tapping process
  - c) a molten metal pouring process
  - d) a casting cooling process

(2) The ventilation coordinator shall perform a ventilation assessment.

(3) The ventilation assessment referred to in subsection (2) shall include:

- i the measurement of the duct velocities in all ventilation systems, including all make up air systems, all general exhaust ventilation systems and all local exhaust ventilation systems where feasible;
- ii the measurement of static pressure in each ventilation system mentioned in paragraph i, including the measurement of static pressure in all branches of local exhaust ventilation of production processes that exhaust lead, where feasible;
- iii the determination of volumetric flow rates for each ventilation system mentioned in paragraph i;
- iv a comparison of total make-up air flow rates to combined general exhaust ventilation flow rates and local exhaust ventilation flow rates;
- v the measurement of static pressure within production areas of the building and outside the building, where feasible;
- vi a comparison of static pressure measurements within production areas of the building and outside the building;
- vii a visual assessment of fugitive fume capture;
- viii a determination of whether the ventilation systems mentioned in paragraph i as a whole adequately captures fugitive fumes of lead from each source of contaminant mentioned in subsection (1); and
- ix a determination of whether any part of the ventilation systems mentioned in paragraph i is inadequate to capture fugitive fumes of lead from a source of contaminant mentioned in subsection (1).

(4) The ventilation coordinator shall prepare a report describing the results of the ventilation assessment required by subsection (3) and submit the report to the Director of Standards Development Branch.

(5) After reviewing the report mentioned in subsection (4), the Director may indicate in writing that,

- (a) he or she is satisfied with the results of the ventilation assessment and the manner in which the ventilation assessment was performed; or
- (b) the ventilation coordinator revise the ventilation assessment in accordance with the directions of the Director and submit a report that sets out the results of the revised assessment.

(6) Subsection (5) applies with necessary modification to the submission of a report under clause (5) (b).

### **Ventilation and Pollution Control – Optimizing Capture of Lead**

7. (1) This section applies to a non-ferrous metal foundry that uses lead and has a source of contaminant that

- i discharges lead; and
- ii is part of one or more of the following processes:
  - a) a metal melting process
  - b) a furnace tapping process
  - c) a molten metal pouring process
  - d) a casting cooling process

(2) A person who discharges or causes or permits the discharge of a contaminant mentioned in subsection (1) shall maintain all areas of the building that contain melt furnaces and pouring operations at a negative pressure.

(3) A person who discharges or causes or permits the discharge of a contaminant mentioned in subsection (1) shall not operate a source of contaminant mentioned in subsection (1) unless the source of contaminant has local exhaust ventilation that is:

- i. designed, installed and operated in accordance with good engineering practices; and
- ii. connected to
  - a) a baghouse that has
    - 1. bag leak detection;
    - 2. audio and visual alarm equipment; and
    - 3. mechanized cleaning of bags or cartridges; or
  - b) a wet scrubber that has a flow monitor and audio and visual alarm equipment.

(4) The person mentioned in subsection (3) shall locate the alarm equipment mentioned in subsection (3) where employees can clearly hear and see the alarm.

**Ventilation and Pollution Control – Optimizing Capture of SPM – New or Modified Facilities**

8. (1) This section applies to a foundry that is a new facility or that has undergone a major modification and that has a source of contaminant that
- i. discharges SPM; and
  - ii. is part of one or more of the following processes:
    - a) a metal melting process
    - b) a furnace tapping process
    - c) a molten metal pouring process
    - d) a casting cooling process
    - e) a process that involves trimming, grinding, cutting, finishing, or media blasting of castings
    - f) a sand reclamation process
- (2) If new ventilation equipment that relates to a source of contaminant mentioned in subsection (1) is installed at the foundry, the ventilation coordinator shall ensure that, in addition to the requirements set out in subsection 5(5), the ventilation program required by subsection 5(4) include,
- i performing and recording the results of ventilation balancing;
  - ii visually assessing whether the fugitive fume capture of fugitive emissions is adequate and recording the results of the assessment; and
  - iii obtaining reports that reflect the commissioning activities of the ventilation systems.

**Ventilation and Pollution Control – Optimizing Capture of Lead – New or Modified Facilities**

9. (1) This section applies to a non-ferrous metal foundry that uses lead that is a new facility or that has undergone a major modification and that has a source of contaminant that
- i discharges lead; and
  - ii is part of one or more of the following processes:
    - a) a metal melting process
    - b) a furnace tapping process
    - c) a molten metal pouring process
    - d) a casting cooling process
    - e) a process that involves trimming, grinding, cutting, finishing, or media blasting of castings
- (2) A person who discharges or causes or permits the discharge of a contaminant mentioned in subsection (1) shall not operate a source of contaminant mentioned in subsection (1) unless it has local exhaust ventilation that is connected to at least one baghouse.
- (3) A baghouse mentioned in subsection (2) shall have,
- (a) automatic cleaning of bags and cartridges;

- (b) bag leak detection continuously operating with continuous monitoring of pressure differential; and
  - (c) audio and visual leak detection alarms that will alert employees to leaks.
- (4) The person mentioned in subsection (2) shall locate the alarm equipment mentioned in subsection (3) where employees can clearly hear and see the alarm.

### **Coke-Fired Cupola Furnaces**

10. (1) Subject to subsection (2), if a foundry has a coke-fired cupola furnace, a person who discharges or causes or permits the discharge of VOCs or SPM from the furnace shall not operate the furnace unless
- (a) the furnace is designed and operated in a manner than ensures that all afterburners operate at all times during the operation of the coke-fired cupola furnace; and
  - (b) the furnace has local exhaust ventilation that is connected to a baghouse.
- (2) The afterburners mentioned in subsection (1) shall have a combined firing rate of 300,000 BTU per ton of metal melted per hour.

### **Operational Practices – Local Exhaust Ventilation Equipment and Pollution Control Equipment**

11. (1) This section applies to a foundry that has any of the following equipment:
- i any equipment that is part of local exhaust ventilation
  - ii baghouse
  - iii thermal oxidizer
  - iv catalytic oxidizer
  - v adsorption system
  - vi wet scrubber
- (2) A person who discharges or causes or permits the discharge of a contaminant from equipment mentioned in subsection (1) shall develop and implement written procedures to ensure the proper operation of the equipment.
- (3) The procedures mentioned in subsection (2) shall include, for each piece of equipment mentioned in subsection (1), procedures to ensure that
- (a) relevant operating parameters are identified for the equipment, which may include temperature and pressure differential;
  - (b) for each parameter identified in clause (a), a range of values is established in which the equipment will be considered to be operating normally;

- (c) the equipment is monitored at established intervals to ensure that each parameter identified in clause (a) is within the range of values identified in clause (b), in particular,
  - i. baghouses and wet scrubbers for SPM control are monitored at least daily to ensure that the parameters identified in clause (a) are within the range of values identified in clause (b);
  - ii. thermal oxidizers and catalytic oxidizers for VOC control and wet scrubbers for sulphur dioxide control are monitored continuously to ensure that the parameters identified in clause (a) are within the range of values identified in clause (b);
  - iii. subject to paragraph iv, wet scrubbers for VOC control are monitored at least every 48 hours to ensure that the parameters identified in clause (a) are within the range of values identified in clause (b); and
  - iv. if a wet scrubber for VOC control is part of a new facility or is part of a facility that has undergone a major modification, the scrubber is monitored continuously to ensure that the parameters identified in clause (a) are within the range of values identified in clause (b);
- (d) the date, time and values of the parameters identified in clause (a) are recorded each time the equipment is monitored as required by clause (c);
- (e) any device used for monitoring is inspected on a regular basis to ensure proper operation and calibrated at least annually, or when technically feasible;
- (f) the equipment is inspected, on a regular basis, for any damage and to ensure proper operation;
- (g) the date and results of inspections required by clauses (e) and (f) are recorded;
- (h) maintenance activities, which may include cleaning and replacement of fabric filters, are performed on the equipment on a regular basis;
- (i) the date and details of the maintenance activities required by clause (h) are recorded;
- (j) discharges from the pollution control equipment are minimized during start up, shut down and malfunction of the equipment;
- (k) recurring malfunctions of the equipment are brought to the attention of the highest ranking employee at the foundry and are addressed promptly;
- (l) if a foundry mentioned in subsection (1) has a piece of equipment identified in Column 1 of Tables 2-1 or 2-2, the following information with respect to a deviation from a requirement of Table 2-1 or 2-2, as applicable, is recorded,
  - i. the date, time and duration of the deviation;
  - ii. the values mentioned in clause (d) for the duration of the deviation including a comparison to the required values as specified in Table 2-1 or 2-2;
  - iii. an explanation of the suspected cause of the deviation;
  - iv. a description of the corrective actions taken and the dates the corrective actions were completed; and
  - v. the names of the personnel assigned to complete the corrective actions.

(4) If a foundry described in subsection (1) has a piece of equipment identified in Column 1 of Table 2-1,

- i the parameters required by clause (a) of subsection (3) shall include all of the parameters set out in Column 2 of Table 2-1 for that piece of equipment;
- ii the range of values required by clause (b) of subsection (3) shall include all of the ranges set out in Column 3 of Table 2-1 for that piece of equipment.

(5) If a non-ferrous foundry that uses lead has a baghouse and if a value recorded under clause (d) of subsection (3) is outside of the range given in Column 4, Table 2-1, the person mentioned in subsection (2) shall notify a provincial officer forthwith in writing.

(6) If a foundry has a piece of equipment identified in Column 1 of Table 2-2, the inspection and maintenance activities required by clauses (f) and (h) of subsection (3) shall include all of the activities set out in Column 2 of Table 2-2 for the piece of equipment and the activities shall be performed with the frequency set out in Column 3 of Table 2-2.

(7) Paragraph i of clause (3)(c) does not apply to a baghouse that has leak detection equipment continuously operating with pressure differential and leak detection alarms that will alert an operator or supervisor if the baghouse is not operating properly.

(8) Subsection (2) does not apply for a period of 6 months after the installation of equipment if,

- (a) the equipment is installed after the date on which a foundry is registered with respect to this industry standard; and
- (b) the foundry is meeting the requirements set out in subsection 42(5) or subsection 44(3) of O.Reg. 419/05, whichever applies.

## **Operational Practices – Minimization of VOCs**

12. (1) This section applies to a foundry that has a source of contaminant that

- i discharges VOCs; and
- ii is part of one or more of the following processes:
  - a) a mold production process (hot box and warm box)
  - b) a core production process (shell core)
  - c) a core production process (cold box using amine catalyst)
  - d) a casting process, including cooling and shakeout

(2) A person who discharges or causes or permits the discharge of a contaminant mentioned in subsection (1) shall develop and implement, in accordance with good engineering practice, written procedures to minimize the discharge and odour impacts of VOCs from each source of contaminant described in subsection (1).

(3) Subject to subsections (4) and (5), the Director may give a written notice to the person mentioned in subsection (2) requiring the person to

- i. perform an analysis of the methods identified under subsection (4), and combinations of those methods, to determine which are technically and economically feasible with respect to the sources of odour emissions listed in the written notice;
- ii. list the methods and combinations of methods that are determined under paragraph i to be technically and economically feasible;
- iii. submit to the Director a plan to implement one or more of the technically and economically feasible options mentioned in paragraph ii; and
- iv. no later than 24 months after receiving written notification that the Director is satisfied with the plan mentioned in paragraph iii, implement the plan in accordance with good engineering practices.

(4) The assessment of technically and economically feasible options to address odour impacts required by paragraph i of subsection (3) shall consider only the following material substitution, process changes and pollution control technologies:

- i. cold setting resins
- ii. non-aromatic solvents
- iii. naphthalene depleted solvent resin
- iv. vacuum forming
- v. thermal oxidizer
- vi. catalytic oxidizer
- vii. adsorption system
- viii. wet scrubbers
- ix. another pollution control technology that in the opinion of the Director is equivalent to a technology listed in paragraphs i to viii.

(5) The Director may give a notice under subsection (3) only if he or she is aware of complaints with respect to odour related to the foundry described in subsection (1), and is of the opinion that the cause of the complaint may be due to the discharge of VOCs from a source of contaminants that is part of a process described in subsection (1).

### **Pollution Control – Minimization of VOCs**

13. (1) This section applies to a foundry that has a source of contaminant that

- i. discharges VOCs; and
- ii. is part of a core production process (cold box using amine catalyst)

(2) A person who discharges or causes or permits the discharge of a contaminant mentioned in subsection (1) shall not operate a source of contaminant mentioned in subsection (1) unless the source of contaminant has local exhaust ventilation that is connected to a wet scrubber, where technically and economically feasible.

**Operational Practices – Minimization of Sulphur Dioxide**

14. (1) This section applies to a foundry that has a source of contaminant that

- i. discharges sulphur dioxide; and
- ii. is part of a core production process (cold box using sulphur dioxide catalyst)

(2) A person who discharges or causes or permits the discharge of a contaminant mentioned in subsection (1) shall develop and implement, in accordance with good engineering practices, written procedures to minimize the discharge of sulphur dioxide from a source of contaminant described in subsection (1), including minimizing discharges during start up, shut down and malfunction of the source of contaminant.

**Pollution Control – Minimization of Sulphur Dioxide**

15. (1) This section applies to a foundry that has a source of contaminant that

- i. discharges sulphur dioxide; and
- ii. is part of a core production process (cold box using sulphur dioxide catalyst)

(2) A person who discharges or causes or permits the discharge of a contaminant mentioned in subsection (1) shall not operate a source of contaminant mentioned in subsection (1) unless the source of contaminant has local exhaust ventilation that is connected to a wet scrubber, where technically and economically feasible.

**Complaint Procedure – SPM, VOCs and Sulphur Dioxide**

16. (1) A person who discharges or causes or permits the discharge of SPM, VOCs or sulphur dioxide from a foundry shall develop and implement written procedures to properly respond to complaints received that relate to those discharges.

(2) The procedures mentioned in subsection (1) shall include procedures to ensure that

- i a prompt response is made to every person who notifies the foundry of an environmental complaint relating to the discharge of SPM, VOCs or sulphur dioxide from one or more sources of contaminant at the foundry;
- ii action is taken to remedy the cause of the complaint described in paragraph i;
- iii a written record of every complaint described in clause (a) is prepared that includes the following information:
  - a) a description of the complaint;
  - b) the date and time that the complaint was received;
  - c) the date and time of the incident to which the complaint relates;
  - d) ambient temperature at the time of the incident to which the complaint relates, if relevant;



- e) the approximate wind direction and wind speed at the time of the incident to which the complaint relates, if relevant;
- f) the general weather conditions at the time of the incident to which the complaint relates, if relevant; and
- g) a description of any corrective and preventive actions taken to address the incident to which the complaint relates and the date each action was completed.

(3) The person mentioned in subsection (1) shall notify a provincial officer in writing of the complaint mentioned in paragraph i of subsection (2) no later than two business days after the foundry received the complaint.

(4) The notification mentioned in subsection (3) shall contain

- i a description of the complaint; and
- ii the time and date of the incident to which the complaint relates.

### **Change Management – SPM, VOCs and Sulphur Dioxide**

17. (1) This section applies to a foundry that has a source of contaminant that

- i. discharges SPM, VOCs or sulphur dioxide; and
- ii. is part of one or more of the following processes:
  - 1. a metal melting process
  - 2. a furnace tapping process
  - 3. a molten metal pouring process
  - 4. a casting cooling process
  - 5. a process that involves trimming, grinding, cutting, finishing, or media blasting of castings
  - 6. a sand reclamation process
  - 7. a materials handling process including a scrap, charge, sand, and slag handling process
  - 8. a mold production process (hot box and warm box)
  - 9. a core production process (shell core and cold box)
  - 10. a casting process, including a cooling and shakeout process

(2) For any of the following information that was required to be identified as part of the registration process for this technical standard, a person who discharges or causes or permits the discharge of a contaminant mentioned in subsection (1) shall prepare a written record that

- i lists each source of contaminant mentioned in subsection (1);
- ii lists all pollution control equipment at the foundry that are related to a source of contaminant mentioned in subsection (1); and
- iii describes the ventilation systems at the foundry, including all local exhaust ventilation, general exhaust ventilation and make-up air systems.

(3) Prior to implementing any change to a ventilation system, the person mentioned in subsection (2) shall assess the possible impacts of the proposed change to the ventilation system, including the effect on ventilation capabilities under the expected operating scenarios, and shall record the results of the assessment.

(4) No later than 3 months after a change is implemented that affects the information required by subsection (2), the person mentioned in subsection (2) shall update the record required by subsection (2) and record the date of the change.

(5) No later than March 31 each year, the highest ranking employee at the foundry shall certify in writing that the record required by subsection (2) was received by him or her.

## Summary Reports

18. (1) This section applies to a foundry that has a source of contaminant that discharges SPM, VOCs or sulphur dioxide.

(2) A person who discharges or causes or permits the discharge of a contaminant mentioned in subsection (1) shall develop and implement written procedures to inform the highest ranking employee at the foundry of the performance of the foundry in relation to the requirements set out in this industry standard.

(3) The procedures mentioned in subsection (2) shall include procedures to ensure that the following tables are prepared

- (a) a table, labelled "Operating Parameter Summary Table" that sets out the following
  - i. each piece of equipment mentioned in subsection 11(1) that is part of the foundry;
  - ii. each source of contaminant mentioned in the 17(1) to which the piece of equipment mentioned in paragraph i is connected;
  - iii. the parameters identified in clause (a) of subsection 11(3) for the piece of equipment mentioned in paragraph i.
  - iv. for each parameter identified in paragraph iii, the range of values established under clause (b) of subsection 11(3); and
  - v. for each parameter identified in paragraph iii, the range of values mentioned in subsection 11(5), if applicable.
- (b) a table, labelled "Deviation Summary Table", that, for the calendar year, sets out a summary of the information described in clause (l) of subsection 11(3) and an explanation of any changes from the summary of the previous year;
- (c) a table, labelled "Implementation Summary Table", that, for the calendar year, sets out
  - i. a summary of the requirements of this industry standard that need to be met by the foundry;

- ii. the timeframe, in accordance with section 2, in which the requirements are required to be met; and
  - iii. an indication of whether the requirement has been met and, if so, the date on which the requirement was met.
- (d) a table, labelled "Complaint Summary Table", that sets out the total number of complaints described in subsection 16(1) that have been received by the foundry in the calendar year and compares the number to the number of complaints received by the foundry in the previous calendar year.

(4) If, during a calendar year, there is a change to the information in the table mentioned in clause (a) of subsection (3), not later than March 31 in the following year, the table shall be updated to reflect the change.

(5) The procedures mentioned in subsection (2) shall ensure that, not later than March 31 of the year following the calendar year mentioned in subsection (3), the tables required by subsection (3) are provided to the highest ranking employee at the foundry.

(6) No later than March 31 of each year, the highest ranking employee at the foundry shall certify in writing that the tables mentioned in subsection (3) have been received by him or her.

(7) The person mentioned in subsection (2) shall, on request, submit a copy of a table mentioned in clause subsection (3) to the Director or to a provincial officer as soon as practicable.

## Records

19. (1) A person who discharges or causes or permits the discharge of a contaminant mentioned in this industry standard shall retain a record required by this industry standard at the facility for at least 5 years and make it available to a provincial officer or Director upon request as soon as practicable.

(2) Despite, subsection (1), installation records and equipment specifications must be retained for the life of all equipment installed in relation to a requirement of this industry standard, including thermocouples, pollution control equipment, and other instrumentation.

**Table 2-1: Specified Parameters & Typical Ranges for Capture and Collection Equipment**

Column 1	Column 2	Column 3	Column 4
Equipment	Parameter	Typical Operating Range	Notification Range (values outside this range)
<b>Baghouse</b> - Cartridge Type with Pulse Jet Cleaning	Pressure Differential	2-6 inches of water gauge	1-8 inches of water gauge
<b>Baghouse</b> - Fabric Filter Mechanical Shaker Cleaned Type	Pressure Differential	2-5 inches of water gauge	1-8 inches of water gauge
<b>Baghouse</b> - Fabric Filter Pulse Jet Cleaned Type	Pressure Differential	4-8 inches of water gauge	3-10 inches of water gauge
<b>Baghouse</b> - Reverse-Air/Reverse-Jet Cleaned Type with & without Sonic Horn enhancement	Pressure Differential	2-6 inches of water gauge	1-8 inches of water gauge
<b>Wet Scrubber – Venturi Scrubber for SPM</b>	1. Scrubbing Liquid Flow rate 2. Pressure Differential	Consistent with Manufacturers recommendations	Not applicable.
<b>Wet Scrubber – Packed Bed Scrubber for VOCs</b>	1. Scrubbing Liquid Flow rate 2. Pressure Differential 3. pH of scrubbing liquid	Consistent with Manufacturers recommendations	Not applicable.
<b>Wet Scrubber – Packed Bed Scrubber for Sulphur Dioxide</b>	1. Scrubbing Liquid Flow rate 2. pH of Scrubbing Liquid	Consistent with Manufacturers recommendations	Not applicable.
<b>Thermal Oxidizer</b>	Temperature	760 °C – 820 °C	Not applicable.
<b>Catalytic Oxidizer</b>	Temperature	400 °C – 600 °C	Not applicable.
<b>Ventilation Equipment</b>	Static pressure of selected critical ventilation ducts for furnace and pouring operations	Consistent with good engineering practice	Not applicable

**Table 2-2: Specified Parameters & Frequency of Typical Inspections/Preventive Maintenance for Capture and Collection Equipment**

Column 1	Column 2	Column 3
Equipment	Activity	Frequency
<b>Baghouse</b> (fabric filter or cartridge)	1. Visual inspection of particulate matter flow from the discharge point to ensure proper discharge	Weekly
	2. Verification of pressure differential and that dust hopper level alarms are working.	Monthly
	3. Visual inspection of fume capture equipment including: <ul style="list-style-type: none"> <li>• holes or evidence of wear in ducts or hoods,</li> <li>• holes or evidence of wear in expansion joints, flex connections,</li> <li>• flow constrictions caused by dents in ducts or misaligned expansion joints and flex connections</li> <li>• changes to “blast gate” or (other type of damper) settings</li> <li>• visual evidence of fan housing erosion.</li> </ul>	Monthly
	4. Visual inspection for any broken or damaged bags, all components of the cleaning mechanism, damper operations and requirements for spare parts	Two times per year
	5. Inspection of the fan/blower which must include: <ul style="list-style-type: none"> <li>• checking for loose or worn belts;</li> <li>• imbalanced impellers</li> <li>• wear or erosion of impeller</li> <li>• dust accumulation on impeller,</li> <li>• unusual vibration or squealing</li> <li>• lubrication of bearings</li> </ul>	Two times per year
	6. Inspection of dust removal system including air locks and screw conveyor: <ul style="list-style-type: none"> <li>• erosion of airlock and conveyor system housings</li> <li>• unusual vibration or squealing</li> <li>• lubrication of bearings</li> </ul>	Two times per year
	7. Inspection of baghouse including: <ul style="list-style-type: none"> <li>• all welds, joints, seals, signs of corrosion, fasteners tightly in place, clean and if necessary repainting</li> </ul>	Annual
	8. Inspection of: <ul style="list-style-type: none"> <li>• baffle plates and tubesheet for wear</li> <li>• ducts for accumulation of dust</li> </ul>	Annual
<b>Wet Scrubber</b>	Inspect: <ul style="list-style-type: none"> <li>• fan and fan bearings for leaks, cracks or loose fittings</li> <li>• pump and fan motor for unusual vibration, heat or noise</li> <li>• system for leaks</li> <li>• damper system for proper operation</li> </ul>	Weekly

Column 1	Column 2	Column 3
Equipment	Activity	Frequency
<b>Wet Scrubber</b> <b>Continued</b>	<ul style="list-style-type: none"> <li>chemical metering pumps and probes for proper operation</li> </ul>	Weekly Continued
	Inspect: <ul style="list-style-type: none"> <li>spray nozzle/bars distribution pattern for plugging or wear</li> <li>flow strainer and clean if necessary</li> <li>fan housing drain</li> <li>condition of fan bearings, belts and seals</li> <li>fan impeller and blades for solids build-up or erosion</li> <li>drag chain</li> <li>clarifier pipeline for plugging</li> </ul> Verify: <ul style="list-style-type: none"> <li>Accuracy of pressure gauge</li> </ul>	Monthly
	Inspect: <ul style="list-style-type: none"> <li>main body for wear, corrosion and build-up</li> <li>piping for erosion and plugging</li> </ul>	Quarterly
	Inspect: <ul style="list-style-type: none"> <li>sump and ductwork for solids build-up</li> <li>internal for corrosion or breakages</li> <li>ductwork, fan and structural supports for deterioration or damage</li> </ul> Calibrate instrumentation where feasible Verify flow meter accuracy	Two times per year
<b>Ventilation Equipment</b>	Inspect: <ul style="list-style-type: none"> <li>Slide gates</li> <li>Position of dampers that are not secured in place on selected critical ventilation ducts for furnace and pouring operations.</li> </ul>	Monthly
	Inspect: Position of dampers that are secured in place on selected critical ventilation ducts for furnace and pouring operations.	Annually
<b>Afterburner</b>	Maintain consistent with manufacturers recommendations	Maintain consistent with manufacturers recommendations
<b>Oxidizer</b> (Thermal or Catalytic)	Inspect: <ul style="list-style-type: none"> <li>condition of fan bearings and belts</li> <li>check fan motor oil level</li> <li>damper operation for regenerative thermal oxidizers</li> </ul>	Monthly

Column 1	Column 2	Column 3
Equipment	Activity	Frequency
<b>Oxidizer</b> (Thermal or Catalytic)  Continued	Inspect: <ul style="list-style-type: none"> <li>• ductwork for leaks</li> <li>• lubricate fan motor bearings</li> <li>• burner for corrosion or warping</li> <li>• burner jets for corrosion and deposits</li> <li>• electrical valves and interlock switches for dirty contacts, moisture leaks and deteriorating insulation</li> </ul> Verify: Interlocks working properly	Quarterly
	Inspect: <ul style="list-style-type: none"> <li>• outer shell for weld cracks and hot spots</li> <li>• ductwork for dirt and blockages</li> </ul>	Two times per year
	Calibrate instrumentation where feasible	Annually

**Appendix 2-1: (Industry Standard for the Foundry Sector): List of SPM**

Number	CAS Number	Contaminant Name
1	7429-90-5	Aluminum
2	7440-36-0	Antimony
3	7440-38-2	Arsenic
4	7440-39-3	Barium
5	7440-41-7	Beryllium
6	7726-95-6	Bromine
7	7440-42-8	Boron
8	7440-43-9	Cadmium (and Cadmium Compounds)
9	7440-70-2	Calcium
10	7440-44-0	Carbon
11	7782-50-5	Chlorine
12	7440-47-3	Chromium (and Chromium Compounds)
13	7440-48-4	Cobalt
14	7440-50-8	Copper (and Copper Compounds)
15	7440-55-3	Gallium
16	18540-29-9	Hexavalent Chromium
17	7440-74-6	Indium
18	7439-89-6	Iron
19	7439-91-0	Lanthanum
20	7439-92-1	Lead (and Lead Compounds)
21	7439-95-4	Magnesium
22	7439-96-5	Manganese (and Manganese Compounds)
23	7439-97-6	Mercury
24	7439-98-7	Molybdenum
25	7440-02-0	Nickel (and Nickel Compounds)
26	14797-55-8	Nitrates
27	Not Available	Organic Carbon



Number	CAS Number	Contaminant Name
28	7440-05-3	Palladium
29	7723-14-0	Phosphorus
30	7440-06-4	Platinum
31	7440-09-7	Potassium
32	7440-16-6	Rhodium
33	7440-17-7	Rubidium
34	7782-49-2	Selenium
35	14808-60-7	Silica
36	7440-21-330194, 12597-37-40	Silicon
37	7440-22-4	Silver
38	7440-23-5	Sodium
39	7440-24-6	Strontium
40	Not Available	Sulphates
41	7704-34-9	Sulphur
42	Not Applicable	Suspended particulate matter
43	7440-28-0	Thallium
44	7440-31-5	Tin and Compounds
45	7440-32-6	Titanium
46	7440-62-2	Vanadium
47	7440-65-5	Yttrium
48	7440-66-6	Zinc and Compounds
49	7440-67-7	Zirconium

## Appendix 2-2: (Industry Standard for the Foundry Sector): List of Volatile Organic Compounds

Number	CAS Number	Contaminant Name
1	575-41-7	1,3-Dimethyl naphthalene
2	571-58-4	1,4-Dimethyl naphthalene
3	569-41-5	1,8-Dimethyl naphthalene
4	90-12-0	1-Methyl naphthalene
5	2245-38-7	2,3,5-Trimethyl naphthalene
6	581-40-8	2,3-Dimethyl naphthalene
7	581-42-0	2,6-Dimethyl naphthalene
8	582-16-1	2,7-Dimethyl naphthalene
9	91-57-6	2-Methyl naphthalene
10	101-77-9	4,4-Methylene Dianiline
11	208-96-8	Acenaphthalene
12	75-07-0	Acetaldehyde
13	98-86-2	Acetophenone
14	107-02-8	Acrolein
15	7664-41-7	Ammonia
16	62-53-3	Aniline
17	191-26-4	Anthranthrene
18	120-12-7	Anthracene
19	71-43-2	Benzene
20	56-55-3	Benzo(a)anthracene
21	203-33-8	Benzo(a)fluoranthene
22	50-32-89784, 34505-58-30	Benzo(a)pyrene
23	205-99-2, 207-08-9	Benzo(b)+(k)fluoranthene
24	205-99-2	Benzo(b)fluoranthene
25	192-97-2	Benzo(e)pyrene
26	191-24-2	Benzo(g,h,i)perylene

Number	CAS Number	Contaminant Name
27	207-08-9	Benzo(k)fluoranthene
28	218-01-9	Chrysene
29	95-48-7	Cresol, o-
30	98-82-8	Cumene
31	53-70-3	Dibenz(a,h)anthracene
32	53-70-3, 215-58-7	Dibenzo(a,h)+(a,c) anthracene
33	132-64-9	Dibenzofuran
34	64-17-5	Ethyl alcohol
35	100-41-4	Ethylbenzene
36	206-44-0	Fluoranthene
37	50-00-0	Formaldehyde
38	98-00-0	Furfuryl alcohol
39	74-90-8	Hydrogen Cyanide
40	7783-06-4	Hydrogen Sulphide
41	193-39-5	Indeno(1,2,3-cd)pyrene
42	67-56-1	Methyl Alcohol
43	101-68-8	Methylene (b) 4-phenylisocyanate
44	91-20-3	Naphthalene
45	110-54-3	n-Hexane
46	98-95-3	Nitrobenzene
47	198-55-0	Perylene
48	85-01-8	Phenanthrene
49	108-95-2	Phenol
50	103-71-9	Phenyl isocyanate
51	123-38-6	Propanol
52	129-00-0	Pyrene
53	100-42-5	Styrene
54	108-88-3	Toluene

Number	CAS Number	Contaminant Name
55	Not Applicable	Total Aldehydes (C2-C25)
56	Not Applicable	Total Amines
57	95-63-3	1,2,4-trimethylbenzene
58	420-56-4	Trimethylfluorosilane
59	108-38-3, 106-42-3	Xylene, m-,p-
60	95-47-6	Xylene, o-
61	1330-20-7	Xylene, total

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### 3.0 FOREST PRODUCTS – INDUSTRY STANDARD

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#### Preamble

- This technical standard is an industry standard as defined in section 1 of O. Reg. 419/05.
- With respect to facilities, this standard applies to every facility that is part of a class identified by NAICS code 3211 (Sawmills and Wood Preservation), 3212 (Veneer, Plywood and Engineered Wood Product Manufacturing) or 3221 (Pulp, Paper and Paperboard Mills), other than a facility that is part of the class identified by NAICS code 321114 (Wood Preservation) or 321211 (Hardwood Veneer and Plywood Mills).
- With respect to contaminants, this standard applies only to acrolein.
- In accordance with subsection 38(3) of O. Reg. 419/05, compliance with this industry standard in accordance with subsection 42 (5) or subsection 44(3) may reduce the regulatory burden applicable to facilities in this class.
- All of the sources of contaminant that discharge acrolein that are associated with the above NAICS codes have been considered in this industry standard. As such, a person registered for this industry standard that meets the criteria set out in subsection 42(1) or subsection 44(1) of O. Reg. 419/05 is, in general, exempt from Part II of the Regulation in respect of the facility and acrolein. In other words, a facility that is registered under this industry standard does not have to include any source of contaminant associated with the NAICS code that applies to them in any future Emission Summary and Dispersion Modelling reports for acrolein. (For more information, please see the Introduction to the Technical Standards Publication.)
- This standard contains requirements that relate to the following sources of contaminant:
  - oriented strand board direct fired rotary dryers
  - particle board rotary dryers
  - particle board dry dryers
  - fiberboard atmospheric refiners
  - unbleached kraft linerboard paper machines
  - tall oil reactors
  - weak black liquor storage tank vents
  - black liquor salt cake mix tank vents
  - brownstock washers
  - oxygen delignification systems
  - bleach plant vents
  - thermo-mechanical pulping vents
  - small-scale lumber kilns
  - full-scale lumber kilns
  - wood-fired combustors

- With respect to acrolein, the publication of this industry standard indicates that the following criteria in paragraph 3<sup>2</sup> of subsection 38(1) of O. Reg. 419/05 are met:
  - (a) with respect to at least two facilities located in Ontario to which this standard applies, it is not economically feasible to comply with section 19 or 20 of O. Reg. 419/05, whichever is applicable,
  - (b) compliance, in accordance with subsection 42 (5) of O. Reg. 419/05, with this standard,
    - (i) is technically and economically feasible with respect to at least one facility located in Ontario to which this industry standard applies, and
    - (ii) will permit efforts that would otherwise be made to comply with section 19 or 20 of O. Reg. 419/05 to be put to better use to protect the natural environment, having regard to subclause (i), and
    - (iii) including this industry standard in “Technical Standards to Manage Air Pollution” is more efficient than having the Director consider separate requests under section 32 of O. Reg. 419/05 for approval of alterations to the standard for acrolein that would otherwise apply to facilities to which this industry standard applies.

## Definitions

1. (1) For the purposes of this forest products industry standard,

“24-hour block average” means an average taken over 24 consecutive hours and does not mean a rolling average. For example, an average of values recorded every hour from midnight to midnight would be a 24-hour block average;

“acrolein” means the contaminant with a CAS Number of 107-02-8;

“CAS No.” has the same meaning as in section 1 of O.Reg. 419/05;

“dry dryer” means a dryer that dries furnish that has an inlet moisture content less than 50 percent (on a dry basis);

“dryer” means a device that removes moisture and includes an oriented strand board direct fired rotary dryer, particle board rotary dryer and particle board dry dryer;

“dryer exhaust diversion” means the diversion of a portion of the total volumetric flow rate of the dryer exhaust to an operating source of combustion;

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<sup>2</sup> With respect to acrolein, the Minister of the Environment is of the opinion that the criteria set out in paragraph 3 of subsection 38(1) of O. Reg. 419/05 are met.

“existing facility” means a facility

- (i) the construction of which was completed or began on or before February 1, 2010, or
- (ii) for which an application was made on or before February 1, 2010 for a certificate of approval in respect of the facility;

“furnish” means wood fibres, particles, or strands used for making board;

“green sorting” means the lumber industry practice of on-site ranking of raw (green) wood feedstock based on the relative moisture content of the wood;

“industry standard” has the same meaning as in section 1 of O. Reg. 419/05;

“major modification” means any process added to the facility after February 1, 2010 which includes a source of contaminant listed in subsection 3(1) and any replacement after February 1, 2010 of a source of contaminant listed in subsection 3(1). It does not include repairs or maintenance. For example, a new or replaced dryer at a facility would be a major modification;

“MOE” means the Ontario Ministry of the Environment;

“NAICS” has the same meaning as in section 1 of O.Reg. 419/05;

“new facility” means a facility, the construction of which began after February 1, 2010 and no application was made on or before that day for a certificate of approval in respect of the facility;

“O. Reg. 419/05” means Ontario Regulation 419/05: Air Pollution – Local Air Quality (as amended) made under the Environmental Protection Act;

“pulp and paper products manufacturing facility” means a facility at which pulp, paper or paperboard is produced and which is part of a class identified by NAICS code 3221 (Pulp, Paper and Paperboard Mills). Examples of pulp and paper products manufacturing facilities include: mechanical pulp mills and chemical pulp mills.

“refiner” means an atmospheric refiner, not a pressurized refiner (sealed vessel);

“sawmill facility” means a facility at which lumber is produced and which is part of a class identified by NAICS code 3211 (Sawmills and Wood Preservation) but does not include NAICS code 321114 (Wood Preservation). Examples of sawmill facilities include sawmills and shingle and shake mills;

“technical standard” has the same meaning as in section 1 of O. Reg. 419/05;

“veneer, plywood or engineered wood products manufacturing facility” means a facility at which veneer, plywood or an engineered wood product is produced and which is part of a class identified by NAICS code 3212 (Veneer, Plywood and Engineered Wood Product Manufacturing), but does not include NAICS code 321211 (Hardwood Veneer and Plywood Mills). Examples of veneer, plywood or engineered wood products manufacturing facilities

include: softwood veneer and plywood mills, structural wood product manufacturing, particle board and fibreboard mills, waferboard mills; and

“temperature sensor validation” means the check of a process temperature sensor with a second temperature sensor (e.g. different or extra) placed nearby the process temperature sensor that must yield a reading within 20°C of the first process temperature sensor.

(2) References in this industry standard to per cent moisture content of furnish is to be expressed on dry basis and, for the purposes of this industry standard, an amount of per cent moisture content on a wet basis shall be converted to dry basis in accordance with the following formula:

$$A = [B/100] / [1-(B/100)] \times 100$$

where

A = the per cent moisture content of the furnish on a dry basis; and

B = the per cent moisture content of the furnish on a wet basis; and

## Application

2. (1) A person who registers on the Ministry's Technical Standards Registry - Air Pollution by the date listed in Column 2 in respect of: (i) this industry standard; (ii) a facility of a type listed in Column 1; and (iii) acrolein, shall comply with the sections listed in Column 3 by the dates specified in Column 4.

Item	Column 1	Column 2	Column 3	Column 4
	<b>Facility Type</b>	<b>Registration Date</b>	<b>Section of the Industry Standard</b>	<b>Date for Compliance with section</b>
1	Existing Facility	Before February 1, 2011	1,2,3,5,6,7,9,10	August 1, 2011
			4	February 1, 2015
2	Existing Facility	On or after February 1, 2011	1,2,3,5,6,7,9,10	The later of (i) the date the facility applies for registration and (ii) August 1, 2011
			4	The later of (i) the date the facility applies for registration and (ii) February 1, 2015
3	New Facility	On or after February 1, 2010	All	The later of (i) the date the facility applies for registration and (ii) February 1, 2011.



4	Registered Existing or New Facility that has a major modification after February 1, 2010.	---	All	The later of (i) the date that any source of contaminant related to the major modification begins operation and (ii) February 1, 2011.
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## Operational Practices

### 3. (1) This section applies to

1. a veneer, plywood and engineered wood products manufacturing facility that has any of the following sources of contaminant that discharge acrolein:
  - i. oriented strand board direct fired rotary dryers
  - ii. particle board rotary dryer
  - iii. particle board dry dryers
  - iv. fiberboard atmospheric refiners
  - v. wood-fired combustors
2. a pulp and paper products manufacturing facility that has any of the following sources of contaminant that discharge acrolein:
  - i. unbleached kraft linerboard paper machines
  - ii. tall oil reactors
  - iii. weak black liquor storage tank vents
  - iv. black liquor salt cake mix tank vents
  - v. brownstock washers
  - vi. oxygen delignification system
  - vii. bleach plant vents
  - viii. thermo-mechanical pulping vents
  - ix. wood-fired combustors; and
3. a sawmill facility that has any of the following sources of contaminant that discharge acrolein:
  - i. a small-scale lumber kiln
  - ii. full-scale lumber kiln
  - iii. wood-fired combustors

(2) A person who discharges or causes or permits the discharge of a contaminant mentioned in subsection (1) shall develop and implement written procedures to ensure the discharge of acrolein is minimized for each source of contaminant described in subsection (1).

(3) The procedures mentioned in subsection (2) shall include, for each source of contaminant mentioned in subsection (1), procedures to ensure that,

- (a) relevant operating parameters are identified for the source of contaminant, which may include temperature and moisture content;
- (b) for each parameter identified in clause (a), a range of values is established in which the source of contaminant will be considered to be operating normally;
- (c) the source of contaminant is monitored at established intervals to ensure that each parameter identified in clause (a) is within the range of values identified in clause (b);
- (d) the date, time and value of the parameters identified in clause (a) are recorded each time the source of contaminant is monitored as required by clause (c);
- (e) any device used for monitoring is inspected on a regular basis to ensure proper operation and calibrated at least annually, or when technically feasible;
- (f) the source of contaminant is inspected for any damage and to ensure proper operation on a regular basis;
- (g) the date and results of inspections required by clause (e) and (f) are recorded;
- (h) maintenance activities are performed on the source of contaminant on a regular basis;
- (i) the date and details of the maintenance activities required by clause (h) are recorded;
- (j) discharges from the source of contaminant are minimized during start up, shut down and malfunction of the equipment; and
- (k) recurring malfunctions of the source of contaminant are brought to the attention of the highest ranking person at the facility mentioned in subsection (1) and are addressed promptly;
- (l) the following information with respect to a deviation from a requirement of this industry standard is recorded,
  - i. the date, time and duration of the deviation;
  - ii. the values mentioned in clause (d) for the duration of the deviation including a comparison to the range of values required to be established under clause (b);
  - iii. an explanation of the suspected cause of the deviation;
  - iv. a description of the corrective actions taken and the dates the corrective actions were completed; and
  - v. the names of the personnel assigned to complete the corrective actions.

(5) Subsection (2) does not apply for a period of 6 months after the installation of a source of contaminant if,

- (a) the source of contaminant is installed after the date on which a facility mentioned in subsection (1) is registered with respect to this industry standard; and
- (b) the facility mentioned in subsection (1) is meeting the requirements set out in subsection 42(5) or subsection 44(3) of O. Reg. 419/05, whichever applies.

**Veneer, Plywood and Engineered Wood Products –Dryer Operating Parameters**

4. (1) This section applies to a veneer, plywood and engineered wood products manufacturing facility that has any of the following sources of contaminant that discharge acrolein:

- i. oriented strand board direct fired rotary dryers
- ii. particle board rotary dryer
- iii. particle board dry dryers

(2) Subject to subsection (4), the parameters required to be identified in clause (a) of subsection 3(3) shall include:

- (a) the parameters set out in Column 1 of Table 3-1; or
- (b) the parameters set out in Column 1 of Table 3-2.

(3) Subject to subsections (4) and (5), the range of values required to be established in clause (b) of subsection 3(3) shall include:

- (a) the range of values set out in Column 3 of Table 3-1, if the parameters required to be identified in clause (a) of subsection 3(3) are the parameters set out in clause (2)(a) ; or
- (b) the range of values set out in Column 3 of Table 3-2, if the parameters required to be identified in clause (a) of subsection 3(3) are the parameters set out in clause (2)(b).

(4) On or before February 1, 2020, subsections (2) and (3) do not apply to a source of contaminant mentioned in subsection (1) at an existing facility mentioned in subsection (1), if the procedures mentioned in subsection 3(2) include procedures to ensure that the following parameters are optimized to reduce discharges from each source of contaminant mentioned in subsection (1) as much as practicable:

1. moisture consistency
2. flake size
3. inlet moisture content of furnish on a dry basis

(5) On or before February 1, 2020, subsection (3) does not apply to a source of contaminant mentioned in subsection (1) at an existing facility mentioned in subsection (1), if the ranges of values required to be established in clause (b) of subsection 3(3) include:

- (a) the range of values set out in Column 2 of Table 3-1, if the parameters required to be identified in clause (a) of subsection 3(3) are the parameters set out in clause (2)(a) ; or
- (b) the range of values set out in Column 2 of Table 3-2, if the parameters required to be identified in clause (a) of subsection 3(3) are the parameters set out in clause (2)(b).

**Veneer, Plywood and Engineered Wood Products - Monitoring**

5. (1) This section applies to a veneer, plywood and engineered wood products manufacturing facility that has any of the following sources of contaminant that discharge acrolein:
- i. oriented strand board direct fired rotary dryers
  - ii. particle board rotary dryer
  - iii. particle board dry dryer
- (2) The intervals for monitoring required to be established in clause (c) of subsection 3(3) shall be
- (a) intervals that are at least as frequent as those set out in Column 4 of Table 3-1, if the parameters required to be identified in clause (a) of subsection 3(3) are the parameters set out in clause (a) of subsection 4(2); or
  - (b) intervals that are at least as frequent those as set out in Column 4 of Table 3-2, if the parameters required to be identified in clause (a) of subsection 3(3) are the parameters set out in clause (b) of subsection 4(2) or paragraph 3 of subsection 4(4).
- (3) For the purpose of clause (l) of subsection 3(3), failure to monitor in accordance with subsection (2) shall be deemed not to be a deviation from clause (c) of subsection 3(3), if at least 75 % of the required recordings were made.
- (4) For clarity, subsection (3) does not relieve a person from making the record required by clause (d) of subsection 3(3) each time the source of contaminant is monitored.

**Veneer, Plywood and Engineered Wood Products - Devices**

6. (1) This section applies to a veneer, plywood and engineered wood products manufacturing facility that has identified parameters under clause (b) of subsection 4(2) and that has any of the following sources of contaminant that discharge acrolein:
- i. oriented strand board direct fired rotary dryers
  - ii. particle board rotary dryer
  - iii. particle board dry dryer
- (2) The devices mentioned in clause (e) of subsection 3(3) shall include the devices set out in Column 1 of Table 3-3 and shall meet the requirements set out in Column 2 of Table 3-3.
- (3) The inspection required to be performed in clause (e) of subsection 3(3) shall include the requirements in Column 3 of Table 3-3 and be done at least as frequently as set out in Column 4 of Table 3-3.

(4) The calibration required to be performed in clause (e) of subsection 3(3) shall include the requirements in Column 5 of Table 3-3 and be done at least as frequently as set out in Column 6 of Table 3-3.

## **Saw Mills**

7. (1) This section applies to a sawmill facility that has a small or full-scale lumber kiln that discharges acrolein.

(2) The procedures mentioned in subsection 3(2) shall include procedures to ensure that discharges from each source of contaminant mentioned in subsection (1) are reduced as much as practicable by reducing the long-term average moisture variability of the lumber exiting the kiln.

(3) The procedures mentioned in subsection (2) shall address

- i. the use of air flow baffling;
- ii. the use of stickering;
- iii. optimization of in-kiln wood moisture;
- iv. the use and optimization of kiln operating control systems;
- v. the use and optimization of humidity tracking; and
- vi. the maintenance of air circulation and heat source components.

(4) The parameters required to be identified in clause (a) of subsection 3(3) shall include the parameters set out in Column 1 of Table 3-4.

(5) The intervals for monitoring required to be established in clause (c) of subsection 3(3) shall intervals that are least as frequent as those set out in Column 2 of Table 3-4.

(6) The devices mentioned in clause (e) of subsection 3(3) shall include the devices set out in Column 1 of Table 3-5.

(7) The inspection required to be performed in clause (e) of subsection 3(3) shall include the requirements in Column 2 of Table 3-5 and be done at least as frequently as set out in Column 3 of Table 3-5.

(8) The calibration required to be performed in clause (e) of subsection 3(3) shall include the requirements in Column 4 of Table 3-5 and be done at least as frequently as set out in Column 5 of Table 3-5.

**Sawmills – Green Sorting**

8. (1) Subject to subsection (4), a person who discharges or causes or permits the discharge of acrolein from a sawmill facility shall not operate the sawmill facility unless the facility is designed and operated to facilitate green sorting.
- (2) The parameter mentioned in subsection 7(4) shall be deemed to be the moisture content of green lumber.
- (3) The devices mentioned in subsection 7(6) shall be deemed to be green lumber moisture meters.
- (4) Subsection (1) does not apply to an existing sawmill facility unless there is a major modification to a sorting process.

**Summary Reports**

9. (1) This section applies to
1. a veneer, plywood and engineered wood products manufacturing facility that has any of the following sources of contaminant that discharge acrolein:
    - i. oriented strand board direct fired rotary dryers
    - ii. particle board rotary dryer
    - iii. particle board dry dryers
    - iv. fiberboard atmospheric refiners
    - v. wood-fired combustors
  2. a pulp and paper products manufacturing facility that has any of the following sources of contaminant that discharge acrolein:
    - i. unbleached kraft linerboard paper machines
    - ii. tall oil reactors
    - iii. weak black liquor storage tank vents
    - iv. black liquor salt cake mix tank vents
    - v. brownstock washers
    - vi. oxygen delignification system
    - vii. bleach plant vents
    - viii. thermo-mechanical pulping vents
    - ix. wood-fired combustors; and
  3. a sawmill facility that has any of the following sources of contaminant that discharge acrolein:
    - i. a small-scale lumber kiln
    - ii. full-scale lumber kiln

iii. wood-fired combustors

(2) A person who discharges or causes or permits the discharge of a contaminant mentioned in subsection (1) shall develop and implement written procedures to inform the highest ranking employee at the facility mentioned in subsection (1) of the performance of the facility in relation to the requirements set out in this industry standard.

(3) The procedures mentioned in subsection (2) shall include procedures to ensure that the following tables are prepared

- (a) a table, labelled "Operating Parameter Summary Table" that sets out the following
  - i. each source of contaminant mentioned in subsection (1) that is part of the facility mentioned in subsection (1);
  - ii. the parameters identified in clause (a) of subsection 3(3) for the source of contaminant mentioned in paragraph i; and
  - iii. for each parameter identified in paragraph ii, the range of values established under clause (b) of subsection 3(3).
- (b) a table, labelled "Deviation Summary Table", that, for the calendar year, sets out a summary of the information described in clause (l) of subsection 3(3) and an explanation of any changes from the summary of the previous year;
- (c) a table, labelled "Implementation Summary Table", that, for the calendar year, sets out
  - i. a summary of the requirements of this industry standard that need to be met;
  - ii. the timeframe, in accordance with section 2, in which the requirements are required to be met; and
  - iii. an indication of whether the requirement has been met and, if so, the date on which the requirement was met.

(4) If, during a calendar year, there is a change to the information in the table mentioned in clause (a) of subsection (3), not later than March 31 in the following year, the table shall be updated to reflect the change.

(5) The procedures mentioned in subsection (2) shall ensure that, not later than March 31 of the year following the calendar year mentioned in subsection (3), the tables required by subsection (3) are provided to the highest ranking employee at the facility mentioned in subsection (1).

(6) No later than March 31 of each year, for the previous year, the highest ranking employee at the facility mentioned in subsection (1) shall certify in writing that the tables mentioned in subsection (3) have been received.

(7) A person who discharges or causes or permits the discharge of a contaminant described in subsection (1) shall, on request, submit a copy of the tables mentioned in clause subsection (3) to the Director or to a provincial officer as soon as practicable.

## Records

10. (1) A person who discharges or causes or permits the discharge of a contaminant mentioned in this industry standard shall retain a record required by this industry standard at the facility for at least five years and make it available to a provincial officer or Director upon request as soon as practicable.

(2) Despite subsection (1), installation records and equipment specifications must be retained for the life of all equipment installed in relation to a requirement of this industry standard, including thermocouples, pollution control equipment and other instrumentation.

**Table 3-1: Veneer, Plywood and Engineered Wood Products (Dryer Exhaust)**

Item	Column 1	Column 2	Column 3	Column 4
	<b>Operating Parameter</b>	<b>Range of Values<sup>1</sup></b>	<b>Range of Values<sup>2</sup></b>	<b>Monitoring Frequency</b>
1	Dryer Exhaust Diversion <sup>3</sup>	At least 10% over a 24-hour block average.	At least 15% over a 24-hour block average.	Diverted Volumetric Flow Rate: At least every 15 minutes <sup>4</sup>  Total Hourly Volumetric Exhaust Flow Rate at Maximum Dryer Capacity: At least annually <sup>5</sup>

<sup>1</sup> Column 2 does not apply to an individual source of contaminant listed in subsection 4(1) if the person who discharges or causes or permits the discharge of the contaminant demonstrates that the combined average percentage diversion of dryer exhaust for all sources of contaminant for which parameters are identified under clause (a) of subsection 4 is at least 10%.

<sup>2</sup> Column 3 does not apply to an individual source of contaminant listed in subsection 4(1) if the person who discharges or causes or permits the discharge of the contaminant demonstrates that the combined average percentage diversion of dryer exhaust for all sources of contaminant for which parameters are identified under clause (a) of subsection 4 is at least 15%.

<sup>3</sup> Dryer Exhaust Diversion must be determined in accordance with Footnote 6 or 7.

<sup>4</sup> Diverted Volumetric Flow Rate may be determined using the position of the damper relative the position of the damper at full flow of the over-fire air fan (i.e. 100% open damper position). For example, if the damper were 50% open, the diverted volumetric flow rate would be determined by multiplying the maximum flow rate of the over-fire air fan by 50%.

<sup>5</sup> Column 4 does not apply to a source of contaminant listed in subsection 4(1) in respect of Total Volumetric Exhaust Flow Rate if the flow rate recorded is the flow rate based on original manufacturer's specifications.

**<sup>6</sup> Determination of Average Dryer Exhaust Diversion for an Individual Dryer over a 24-Hour Block**

When determining the percentage Dryer Exhaust Diversion for an Individual Dryer, the following steps shall be followed:

1. measure the diverted volumetric low rate for the dryer at least every 15 minutes for a one hour period.
2. determine the average hourly diverted volumetric flow rate for the dryer
3. determine the total hourly volumetric exhaust flow rate at maximum dryer capacity.
4. divide the value in step 2 by the value in step 3.
5. repeat steps 1 through 4, for every hour that the dryer operated with furnish during a period of 24 consecutive hours.
6. add up the values determined under step 5 and divide by the number of hours that the dryer operated with furnish during the period.



**<sup>7</sup> Determination of combined average percentage diversion of Dryer Exhaust Diversion over a 24-Hour Block**

When determining the combined percentage Dryer Exhaust Diversion for all dryers to which this parameter applies, the following steps shall be followed:

1. For each dryer to which the dryer exhaust diversion parameter applies,
  - a. measure the diverted volumetric low rate for the dryer at least every 15 minutes for a one hour period.
  - b. determine the average hourly diverted volumetric flow rate for the dryer
  - c. determine the total hourly volumetric exhaust flow rate at maximum dryer capacity.
2. For each dryer to which the dryer exhaust diversion parameter applies, sum each value determined under step 1b for every hour that the dryer operated during a period of 24 consecutive hours and divide by the total number of hours that the dryer operated during the period.
3. For each dryer to which the dryer exhaust diversion parameter applies, sum each value determined under step 1c for every hour that the dryer operated with furnish during a period of 24 consecutive hours divide by the total number of hours that the dryer operated with furnish during the period.
4. Sum the values determined in step 3 for all dryers to which the dryer exhaust diversion parameter applies.
5. Sum the values determined in step 4 for all dryers to which the dryer exhaust diversion parameter applies.
6. Divide the value determined in step 5 by step 6.

**Table 3-2: Veneer, Plywood and Engineered Wood Products (Inlet Temperature and Moisture Content)**

Item	Column 1	Column 2	Column 3	Column 4
	<b>Operating Parameter</b>	<b>Range of Values</b>	<b>Range of Values</b>	<b>Monitoring Frequency</b>
1	Inlet temperature	Less than 316°C (600F) over a 24-hour block average.	Less than 232°C (450F) over a 24-hour block average.	At least every 15 minutes
2	Inlet moisture content of furnish	Less than 30% by weight, on a dry basis over a 24-hour block average	Less than 30% by weight, on a dry basis over a 24-hour block average	At least every 15 minutes

**Table 3-3: Inspection and Calibration – Veneer, Plywood and Engineered Wood Products**

Item	Column 1	Column 3	Column 3	Column 4	Column 5	Column 6
	<b>Device</b>	<b>General Requirements</b>	<b>Inspection Requirements</b>	<b>Inspection Frequency</b>	<b>Calibration</b>	<b>Calibration Frequency</b>
1.	Inlet Temperature	<p>1. Inlet Dryer temperature sensor must be in a position that provides a representative temperature.</p> <p>2. If a chart recorder is used then the minor divisions must be not more than 10°C.</p>	Inspection of all temperature monitor components and all electrical connections for continuity, oxidation and galvanic corrosion.	Quarterly	<p>1. Calibration of inlet temperature monitors with an accurate within 0.75% of sensor range or +/- 2.5°C.</p> <p>2. Temperature sensor validation of the inlet temperature is required when sensor exceeds the manufacturer's maximum operating temperature range.</p>	<p>1. As recommended by the manufacturer</p> <p>2. If 1 is not applicable, at least two times per year, or</p> <p>3. If 1 and 2 are not applicable, when technically feasible</p>
2.	Inlet Moisture	Inlet moisture monitor in a position that provides a representative measure of furnish moisture.	Inspection of all moisture meter components and all electrical connections for continuity, oxidation and galvanic corrosion.	Quarterly	Calibration of inlet moisture meters accurate within 1% (dry basis) moisture of 25-35% moisture content range.	<p>1. As recommended by the manufacturer</p> <p>2. If 1 is not applicable, , at least two times per year, or</p> <p>3. If 1 and 2 are not applicable, when technically feasible</p>

**Table 3-4: Operating Parameters – Sawmills**

Item	Column 1	Column 2
	<b>Operating Parameter</b>	<b>Monitoring Frequency</b>
1.	Wood moisture content	Once per load

**Table 3-5: Inspection and Calibration – Sawmills**

Item	Column 1	Column 2	Column 3	Column 4	Column 5
	<b>Device</b>	<b>Inspection Requirements</b>	<b>Inspection Frequency</b>	<b>Calibration</b>	<b>Calibration Frequency</b>
1.	Moisture meter	Consistent with manufacturer's recommendations	Quarterly	Consistent with manufacturer's recommendations	1. As recommended by the manufacturer  2. If 1 is not applicable, , at least two times per year, or  3. If 1 and 2 are not applicable, when technically feasible



## Appendix A: Record of Publications

Tracking	Date	Publishing Minister
Version 1.0 Technical Standards to Manage Air Pollution	Created December 4, 2009	Gerretsen
Version 1.0 Foundry Industry Standard	Created December 4, 2009	Gerretsen
Version 1.0 Forest Products Industry Standard	Created December 4, 2009	Gerretsen